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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.        | CONFIRMATION NO.       |
|--|-------------|----------------------|----------------------------|------------------------|
| 10/566,817   | 01/26/2006  | Sadahiko Yamamoto    | 36299PCTUS                 | 9027                   |
| 33769 7590 11/21/2007<br>BODNER & O'ROURKE, LLP<br>425 BROADHOLLOW ROAD, SUITE 108<br>MELVILLE, NY 11747 |             |                      | EXAMINER<br>DINH, TRINH VO |                        |
|  |             |                      | ART UNIT<br>2821           | PAPER NUMBER           |
|  |             |                      | MAIL DATE<br>11/21/2007    | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/566,817

Applicant(s)

YAMAMOTO ET AL.

Examiner

Trinh Vo Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

This is a response to the amendment filed 09/26/2007. Claim 1 is amended. Claims 14-16 are newly added. Amended claim 1 and newly added claims 14-16 necessitate a further consideration as presented below.

***Election/Restrictions***

1. Restriction to one of the following species is required under 35 U.S.C. 121:
  - I. Amended claims 1-14 and newly added claim 14, drawn a patch antenna, among other things, a single dielectric substrate with uniform dielectric constant.
  - II. Newly added claim 15, drawn to a patch antenna, among with other things, an abrupt step in thickness of the dielectric substrate as being situated in alignment with the patch conductor between the first and second ends of the patch conductor but offset from and in non-alignment with the center of the patch conductor.
  - III. Newly added claim 16, drawn to a patch antenna, among with other things, comprising a first spacing, a second spacing situated adjacent the first spacing, and an abrupt change in the spacing situated between the first spacing and the second spacing, the abrupt change in spacing as being situated in alignment with the patch conductor between the first end and the second end of the patch conductor, and being offset from and in non-alignment with the center of the patch conductor.

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2. The species are independent or distinct because claims to the different species recite the mutually exclusive characteristic of such species. In addition, these species are not obvious variants of each other based on the current record.

There is an examination and search burden of these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and /or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

3. The amended claims 15-16 are directed to species that are distinct from the species originally claimed for the reasons as presented above. Since Applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 15-16 are withdrawn from consideration as being directed to a non-elected invention (See 37 CFR 1.142(b) and MPEP 821.03) and claims 1-14 have been considered.

#### **DETAILED ACTION**

The request for submitting a missing page 2 of the IDS filed 01/23/2006 had not been considered by Applicant. Therefore, the request is repeated in the office action.

#### ***Information Disclosure Statement***

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4. In the information disclosure statement filed 01/26/2006, page 2 of the Information Disclosure Citation has been found missing. The Applicant is required to submit a copy of page 2 of the IDS for Examiner's consideration.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawabata Kazuya (JP 03 068201 of record).

Kawabata discloses, in Figs. 1-11 and abstract, a patch antenna including a dielectric substrate (10), a ground conductor (14) formed on one main surface of the dielectric substrate, and a patch conductor (12) formed on another main surface of said dielectric substrate, wherein radiation efficiency is changed in a direction of wavelength-dependent length of said patch conductor. Kawabata further discloses a spacing between said patch conductor and said ground conductor (thickness of 10) is made nonuniform in said direction of wavelength-dependent length and a thickness of said dielectric substrate (10) is changed in said direction of wavelength-dependent length. Respecting the functional recitation of "the patch antenna exhibits a radiation pattern which is asymmetric along the length of the antenna". Kawabata discloses the same structural configuration as the claimed invention. Therefore, although not explicitly stated in Kawabata, it is inherently that the patch antenna of Kawabata exhibits a radiation pattern which is asymmetric along the length of the antenna as claimed.

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Respecting claim 14, Kawabata discloses the dielectric substrate (10) being a single dielectric substrate and having a uniform dielectric constant.

7. Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukui Takahito (JP 2002-217638 of record).

Respecting claims 1 and 3, Fukui discloses, in Figs. 3-5 and abstract, a patch antenna including a dielectric substrate (2), a ground conductor (3) formed on one main surface of the dielectric substrate, and a patch conductor (1) formed on another main surface of said dielectric substrate, wherein radiation efficiency is changed in a direction of wavelength-dependent length of said patch conductor, and thickness of said dielectric substrate (10) is changed in said direction of wavelength-dependent length. . Respecting the functional recitation of "the patch antenna exhibits a radiation pattern which is asymmetric along the length of the antenna". Takahito discloses the same structural configuration as the claimed invention. Therefore, although not explicitly stated in Takahito, it is inherently that the patch antenna of Takahito exhibits a radiation pattern which is asymmetric along the length of the antenna as claimed.

Respecting claim 4, Fukui discloses, in the abstract, a dielectric constant is changed in said direction of wavelength-dependent length.

8. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujimoto Kyohei (JP 06-069717 of record).

Fujimoto discloses, in Figs. 1-4, a patch antenna including a dielectric substrate (5), a ground conductor (2) formed on one main surface of the dielectric substrate, and a patch conductor (1) formed on another main surface of said dielectric substrate, wherein radiation efficiency is changed in a direction of wavelength-dependent length of said patch conductor.

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Fujimoto further discloses, and thickness of said dielectric substrate (5) is changed in said direction of wavelength-dependent length. Respecting the functional recitation of "the patch antenna exhibits a radiation pattern which is asymmetric along the length of the antenna". Fujimoto discloses the same structural configuration as the claimed invention. Therefore, although not explicitly stated in Fujimoto, it is inherently that the patch antenna of Fujimoto exhibits a radiation pattern which is asymmetric along the length of the antenna as claimed.

Respecting claim 14, Fujimoto discloses the dielectric substrate (5) being a single dielectric substrate and having a uniform dielectric constant.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata or Fukui or Fujimoto (hereafter Kawabata/Fukui/ Fujimoto in view of Yabe Takakiyo (JP 05 121925 of record).

Kawabata/Fukui/ Fujimoto discloses every feature of the claimed invention except a dielectric on the patch conductor. Yabe discloses, in Fig. 1 and 5, a dielectric (15) being loaded on a patch conductor (11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a dielectric on Kawabata/Fukui/Fujimoto's patch conductor in order to easily adjust resonant frequency in both directions without remodeling the antenna as taught in abstract of Yabe.

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11. Claim 6 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata/Fukui/ Fujimoto in view of Kuriyama Toshihide (JP 2002-171190 of record).

Kawabata/Fukui/ Fujimoto discloses every feature of the claimed invention except claimed arrangement of the antenna. Kuriyama discloses, in Figs. 1-3, a cellular telephone includes a housing (1A, 1B), and a patch antenna (3A, 3B) is arranged in such a manner that said direction of wavelength-dependent length matches the direction of thickness of said housing, and that a side thereof with higher radiation efficiency is faced opposite to a side of said housing making contact with head of a person. It would have been obvious to one having ordinary skill in the art to arrange Kawabata/Fukui/Fujimoto's antenna in the manner as taught by Kuriyama. Doing so would provide the antenna with a capability of being hardly affected by any human head and improve speed quantity in both waiting and speaking states.

*Response to the arguments*

12. Applicant argues that the cited reference fails to teach a newly added limitation of "the patch antenna exhibits a radiation pattern which is asymmetric along the length of the antenna". As presented in the rejections of claim 1, the function language of "the patch antenna exhibits a radiation pattern which is asymmetric along the length of the antenna" is not a structural limitation. Therefore, it cannot be relied upon to define over the prior art that meets the claim structural limitation. Since the cited art discloses the same structural configuration as the claimed invention, it would perform the function of "the patch antenna of Kawabata exhibits a radiation pattern which is asymmetric along the length of the antenna" as claimed. In order to extinguish from the prior art, a functional recitation must be recited with a structure which is different from the cited art for performing the specified function.



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Respecting newly added claim 14, Kawabata and Fujimoto disclose the dielectric substrate (10 or 5) being a single dielectric substrate and having a uniform dielectric constant as discussed above.

***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

***Inquiry***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

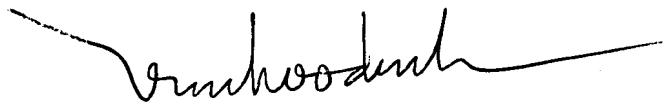
Any inquiries relating to the communication should be directed to the Examiner Trinh Dinh, Art Unit 2821, at (571) 272-1821

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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*November 14, 2007*

A handwritten signature in black ink, appearing to read 'Trinh Dinh', with a long horizontal flourish extending to the right.

TRINH DINH  
PRIMARY EXAMINER